WHAT IS CLAIMED IS:

1. A method for transmitting information in a wireless network operating in an environment with other wireless networks and sources of errors, noise, and interference, the method comprising:

tuning a receiver to a frequency band of interest;

taking a snapshot of a communications channel at the frequency band of interest;

calculating a channel metric based on the channel snapshot;

comparing the channel metric against a threshold; and

performing an action based on the result of the comparison.

2. The method of claim 1, wherein the taking step comprises saving received signal levels at regular frequency intervals within the frequency band of interest.

3. The method of claim 2, wherein the calculating step comprises averaging the received signal levels over the frequency band of interest.

4. The method of claim 2, wherein the calculating step comprises integrating the received signal levels over the frequency band of interest.

5. The method of claim 2, wherein the calculating step comprises adding the received signal levels over the frequency band of interest.

6. The method of claim 1, wherein the taking step comprises continually saving received signal levels for an extended amount period of time to provide history information about the frequency band of interest.

7. The method of claim 1, wherein the performing step comprises transmitting a packet if the channel metric is less than the threshold.

8. The method of claim 1, wherein the wireless network permits transmissions in a sequence of time slots and each time slot has a corresponding transmission frequency that is from a sequence of transmission frequencies, and wherein the sequence of transmission frequencies is specified based on an address of a master unit, wherein prior to the tuning step, the method further comprising:

determining a current time slot; and

determining the frequency band of interest based on the current time slot.

9. The method of claim 8, wherein the frequency band of interest is the transmission frequency associated with the time slot immediately following the current time slot.

10. The method of claim 9, wherein the performing step comprises transmitting a packet in the time slot immediately following the current time slot if the channel metric is less than the threshold.

11. The method of claim 8, wherein the frequency band of interest comprises the transmission frequencies associated with a plurality of time slots immediately following the current time slot.

12. The method of claim 11, wherein a channel metric is calculated for each time slot in the plurality of time slots, and wherein the performing step comprises transmitting a packet in the time slot selected from the plurality of time slots with the smallest channel metric.

13. The method of claim 8, wherein the performing step comprises selecting a maximum transmission packet length based on the result of the comparison.

14. The method of claim 13, wherein the transmission is partitioned into a plurality of packets with each packet being less than or equal to the maximum transmission packet length.

15. The method of claim 13, the performing step further comprises selecting a data encoding method based on the result of the comparison.

16. The method of claim 15, wherein the strength of the selected data encoding method is based on the value of the channel metric.

17. The method of claim 1, wherein the method further comprises:

transmitting the calculated channel metric to a master unit; and

at the master unit:

determining a wireless unit associated with the smallest channel metric.

18. The method of claim 17, wherein the performing step comprises initiating a master-slave switch based on the result of the comparison.

19. The method of claim 18, wherein the master-slave switch is not initiated if the difference between the smallest channel metric and the channel metric of the current master unit is less than a specified threshold.

20. A wireless communications unit comprising:

an antenna for receiving and transmitting signals;

a receive path coupled to the antenna, the receive path containing circuitry to process signals received via the antenna;

a transmit path coupled to the antenna, the transmit path containing circuitry to process signals to be transmitted by the antenna; and

a processor coupled to the receive and transmit paths, the processor comprising:

a channel metric calculator coupled to the receive path, the channel metric calculator containing circuitry to measure a frequency band of interest and to generate a metric based on the measurement;

a transmission frequency calculator coupled to the transmit path, the transmission frequency calculator containing circuitry to calculate a next transmission frequency based on a clock and a current transmission frequency;

a transmission scheduler coupled to the channel metric calculator and the transmission frequency calculator, the scheduler containing circuitry to schedule a transmission based on information generated by the channel metric calculator; and

a transmission partitioner coupled to the transmission scheduler, the channel metric calculator and the transmission frequency

calculator, the partitioner containing circuitry to determine a size of the transmission based on information generated by the channel metric calculator.

21. The wireless communications unit of claim 20, wherein the channel metric calculator continually monitors the frequency band of interest and uses information related to the frequency band to generate history information regarding the frequency band.

22. The wireless communications unit of claim 20, wherein the channel metric calculator monitors the next transmission frequency only when there is a transmission to process.

23. The wireless communications unit of claim 20, wherein the transmission scheduler can schedule a transmission only in the next transmission frequency.

24. The wireless communications unit of claim 20, wherein the transmission frequency calculator calculates a sequence of next transmission frequencies, and wherein the transmission scheduler can

schedule a transmission during any transmission frequency in the sequence of next transmission frequencies.

25. A communications system comprising:

At least two wireless communications units wirelessly coupled to each other, each wireless communications unit comprising:

an antenna for receiving and transmitting signals;

a receive path coupled to the antenna, the receive path containing circuitry to process signals received via the antenna;

a transmit path coupled to the antenna, the transmit path containing circuitry to process signals to be transmitted by the antenna; and

a processor coupled to the receive and transmit paths, the processor comprising:

a channel metric calculator coupled to the receive path, the channel metric calculator containing circuitry to measure a frequency band of interest and to generate a metric based on the measurement;

a transmission frequency calculator coupled to the transmit path, the transmission frequency calculator containing circuitry to calculate a next transmission frequency based on a clock and a current transmission frequency;

a transmission scheduler coupled to the channel metric calculator and the transmission frequency calculator, the scheduler containing circuitry to schedule a transmission based on information generated by the channel metric calculator; and

a transmission partitioner coupled to the transmission scheduler, the channel metric calculator and the transmission frequency calculator, the partitioner containing circuitry to determine a size of the transmission based on information generated by the channel metric calculator.

26. The communications system of claim 25, wherein there is a plurality of wireless communications units, and wherein one of the wireless communications units is a master unit and the remaining wireless communications units are slave units.